

# Effects of biodiesel blends and producer gas flow on overall performance of a turbocharged direct injection dual-fuel engine

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## ABSTRACT

This paper elaborates the experimentation on a Turbocharged Direct Injection engine using calophyllum biodiesel and producer gas. The objective of this study was to evaluate the performance and emission characteristics, at different gas flow rates keeping load constant. The result depicted a reduced efficiency of 4.2% and enhanced exhaust gas temperature of 12.2% at varying gas flow rates. Consider the emission analysis, smoke opacity 51.7%↓, nitric oxide 37.3%↓, carbon monoxide 17.7%↓ and hydrocarbon 35.9%↓ reduced for all test fuels at maximum load conditions, in contrast to single-fuel mode. Finally, it can be concluded that dual-fuel engines evolved as potential substitute for diesel.

## KEYWORDS

Calophyllum biodiesel; babul wood producer gas; diesel engine; smoke opacity; nitric oxide; gasification

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